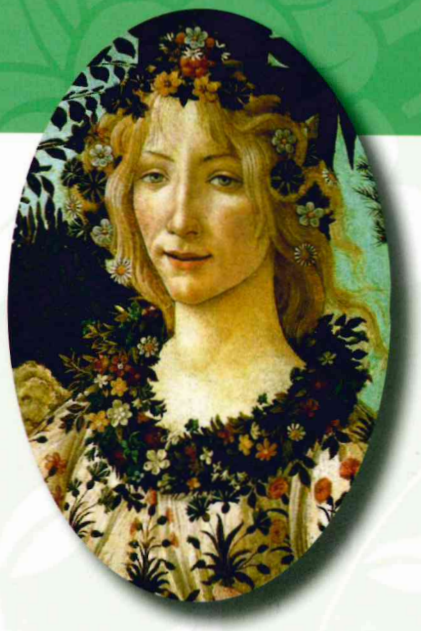

ICA2018

11th International Congress on Aerobiology

Parma, Italy, 3-7 September 2018

Parma Chamber of Commerce Congress Centre

ORGANISED BY

International Association for Aerobiology

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P.43 - BACKWARD AIR TRAJECTORY MODELS FOR DETECTING POLLEN AIRBORNE SOURCES OF CASTANEA IN RONDA (SOUTH SPAIN)

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Since December 2016, the Aerobiology research team of the University of Malaga has been sampling and studying the atmospheric pollen content in Ronda, the biggest city in the northwest of Malaga province (SW Spain). Ronda is located in a rural area close to the natural Parks Sierra de Grazalema and Sierra de las Nieves, surrounded by crops, natural and seminatural vegetation. The Genal Valley, which is located at the southwest of Ronda, is the biggest Castanea sativa Mill. crop area in Andalusia (South Spain) but there are also others C. sativa crops in different areas close to Ronda. This increases the Castanea atmospheric pollen levels in Ronda, the highest of Malaga province. Castanea pollen has been cited by different authors as potentially allergenic. Moreover, its cross-reactivity with Quercus, Betula and Corylus pollen has been proved. The objective of this preliminary study was to determine the main sources of Castanea pollen detected in Ronda during the period in which the highest concentrations were detected along the year 2017.
The pollen samplings were made by means of a Hirst-type volumetric pollen trap placed on the roof of the 'Pérez de Guzmán' High School (Ronda, 36°44'N, 5°10'W, 751m a.s.l.) The samples obtained were mounted and counted according to the methodology proposed by the Spanish Aerobiology Network (REA). Backward air trajectories were calculated according to HYSPLIT 4 model. Meteorological data were obtained from the US National Oceanic and Atmospheric Administration (NOAA). Models were run five times a day by using R software for the whole month of June 2017.
Differences in the air provenance were found in days with different concentrations of airborne Castanea pollen. According to the backward air trajectory models, the main sources of Castanea airborne pollen detected in Ronda are the crops situated in the southeast of the city and not those located in the Genal Valley.
Due to the wind dynamics in Ronda, the main source of Castanea airborne pollen was not the expected (the Genal Valley). The dominant winds in June 2017 came from the southeast of Ronda and brought Castanea pollen from the crops of two nearby localities, Istan and Ojen, which are widely smaller than those situated in the Genal Valley. Therefore, due to the high pollen production of these crops, predictive models for the Castanea airborne pollen in Ronda should be done in future researches in order to prevent allergic diseases in the population. Additionally, by studing air trajectory models, the cross pollination between Castanea populations in the area can be estimated.

Keywords: chestnut, wind, dispersion.

P.44 - FIRST STUDY OF POLLEN DISPERSION OF AN OLIVE (OLEA EUROPAEA L.) CROP IN URUGUAY

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Uruguay has a temperate and wet climate, with rain all over the year, with an annual average of 1300 mm and a mean annual temperature of 16.6 °C. These agents can influence the development of the plants and the pollen's production. The main aim of this research is to analyze the relationship between airborne olive pollen concentrations and local meteorological parameters.
The sampling took place in Rocha, Uruguay, in a commercial olive orchard of 940 hectares. Hirst-type volumetric trap worked continuously during 60 days, between September and November 2017. Meteorological data (temperature, relative humidity, wind speed and rainfall) were supplied by a station inside the crop. Spearman non-parametric correlations between those meteorological variables and the pollen counting were calculated for the month of the highest pollen concentration and for 8-hour intervals (i.e. morning, afternoon and night).
The results showed a negative relationship with the rainfall and a positive correlation with the wind speed. However, when 2 – hour intervals were taken into account, significant correlations were obtained for all the parameters. Moreover, the relationship between pollen concentration and floral phenology was that the days with the highest pollen concentration overlap with the period of greatest quantity of open flowers of the planted varieties Arbequina, Coratina and Picual. Most of previous studies were undertaken in regions with different weather conditions than those prevailing in Uruguay. Being this the first study, further, continuous aerpalynological sampling in those olive crops in Uruguay are essential to obtain more conclusive results.
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Keywords: pollen, olive, Uruguay.